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EUNICITES PHOENICIUS N. SP.,
A NEW FOSSIL POLYCHAETE ANNELID
OF THE CENOMANIAN OF HAKEL, LEBANON

Abstract. — We describe here a new species of polychaete annelid, based on two specimens discovered in the Cenomanian deposit of Hakel, Lebanon.

Riassunto. — *Eunicites phoenicius n. sp.*, un nuovo anellide polichete fossile del Cenomaniano di Hakel, Libano.

Viene descritta una nuova specie di anellide polichete, di cui sono stati rinvenuti due esemplari nel giacimento cenomaniano di Hakel nel Libano.

We describe here two fossil specimens of polychaete annelids from the Cenomanian of Hakel, Lebanon. They belong to a comprehensive fossils collection of the Cenomanian of Hakel and Hadjula and of the Senonian of Sahel Alma, that was given to the Museo Civico di Storia Naturale di Milano by Mr. Roland Anhoury in 1983. This collection includes remains of plants, vertebrates and invertebrates.

The invertebrate fauna of the Cretaceous of Lebanon was fully described by ROGER in 1946. In his work, ROGER illustrates some specimens of polychaete annelids without making a precise classification: some are assigned to the order Phyllodocida (though dubitatively) and some others are not systematically identified. The only general classification made by ROGER concerns the remains of mouth apparatus assigned without any doubt to *Eunicites* Ehlers, 1868, and of an almost fully-preserved specimen coming from Hadjula, which was included dubitatively among *Eunicites* Ehlers, 1868. Other two polychaetes of the Cenomanian of Hakel were described and portrayed in 1971 by KOZUR and classified as indeterminate eunicids.

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The collection of the Museo Civico di Storia Naturale di Milano includes six specimens of errant polychaetes showing different states of preservation. Two of them, which are here described, are very well preserved. Both lack the end part of their body, but part of the mouth apparatus, the cephalic appendages, the trace of the digestive tract as well as the aciculae are still clearly visible.

Preserved errant polychaetes in their fossil state are rather uncommon. In the Mesozoic terrains, some remains of such animals featuring their soft body parts were recorded in the Cretaceous of Lebanon, in the Bundsandstein of the Vosges Mountains (GALL & GRAUVOGEL, 1967), in the Rhaetic of Lombard Pre-Alps (ALESSANDRELLO & TERUZZI, 1986), in the Sinemurian of Osteno on the Lake of Lugano (ARDUINI, PINNA & TERUZZI, 1982) and in the Upper Jurassic of Solnhofen (EHLERS, 1868, 1869). They include genera assigned to the orders Phyllodocida (*Homaphrodite* Gall & Grauvogel, 1967, and *Palaeoaphrodite* Alessandrello & Teruzzi, 1986) and Eunicida (*Melanoraphia* Arduini, Pinna & Teruzzi, 1982 and *Eunicites* Ehlers, 1868).

The two specimens under examination are classified as belonging to the order Eunicida Dales, 1962, genus *Eunicites* Ehlers, 1868.

Order Eunicida Dales, 1962

Family Eunicidae Savigny, 1818

Genus *Eunicites* Ehlers, 1868

***Eunicites phoenicius* n. sp.**

Derivatio nominis: from Phoenicians, ancient inhabitants of Lebanon.

Holotype: N° cat. i 7843, Collection of the Museo Civico di Storia Naturale di Milano.

Paratype: N° cat. i 7844, Collection of the Museo Civico di Storia Naturale di Milano.

Type locality: Hakel, Lebanon.

Geological age: Cenomanian.

Diagnosis: elongated, vermiform body. Aciculae gathered in tufts of twos, with the presence of an intercalary acicula. Cephalic region featuring a pair of elongated cirri. Elongated triangle-like mandibles, thicker in their front edge and with smooth front margin.

Description.

The two specimens here illustrated show an elongated, vermiform body divided into metameres in not determinable number, since both specimens lack the end part of the body.

The type of the new species measures about 70 mm in length and has about 70 metameres, whereas the paratype is about 160 mm long; the exact number of metameres of the latter cannot be detected.

Some evidence of the metamerism is given by the presence of acicular tufts spread along both sides of the body. Such tufts are made of pairs of robust aciculae; these are sometimes accompanied by a thinner intercalary acicula, which stems from the tufts base and from this divaricates. Since we must judge only from the acicular distribution — as the body contours are not preserved — it is impossible to say exactly whether the parapodia are just of biramous type or whether they differentiate in a notopodium in dorsal position and in a neuropodium in ventral position.

The type's cephalic region still retains well visible antennae, which are thin and about 10 mm long. The buccal organs consist of two triangularly-shaped mandibles elongated backwards, that in the front show an evident triangular thickening with smooth, not denticulated edges. Jaws are really poorly preserved: it is possible to identify some fragments, and on the mandible sides the impression of the forceps can hardly be seen. The jaw base is also poorly preserved; on the type specimen, one can see just a slight mark of its triangular shape.

In both specimens, the impression of the digestive tract is clearly visible along the full body length. In the paratype, such impression is really evident, and in the back of the body it shows several constrictions. Probably these are due to the contractions of diaphragms, which in living eunicids are to be found between metameres: if the diaphragms are contracted, this part of the body takes on a moniliform aspect.

In the two specimens the front body part is larger. In the paratype it features small, brownish-orange patches on the acicular tufts of each side. Similar patches were observed in the specimens of *Melanoraphia maculata* of the Sinemurian of Osteno (ARDUINI, PINNA & TERUZZI, 1982, p. 465) and they were considered, though dubitatively, as corresponding to the original position of gills. Their development was explained as a possible accumulation of respiratory pigments.

Confrontations.

The features of the buccal organs and the body general morphology suggest that the species *Eunicites phoenicius* belongs to the order Eunicida Dales, 1962. The presence of two thin antennae on the cephalic end enable us to distinguish this form from *Melanoraphia maculata* Arduini, Pinna & Teruzzi, 1982, the latter having a simple external morphology and lacking cephalic appendages, and was therefore included in the family Lumbrineridae.

Instead there are strong similarities with the genus *Eunicites* Ehlers, 1868 that justify our generic attribution. According to KOZUR's revision of 1970, the type species *E. proavus* Ehlers, 1868 is characterised by two cirri quite similar to those observed in our specimens. The body features of *Eunicites phoenicius* also correspond to those of EHLER's species. However *E. phoenicius* differs from *E. proavus* in the shape of the mandibles' front part. In *E. proavus*, in maxillary view, these are of an oval form with denticulated margins, whereas in *E. phoenicius* they are flat, with a triangular shape and smooth margins.

The specimen classified by ROGER as « Annelid sp. II (*Eunicites* sp.) » and represented by him in Plate I, Fig. 10 (as *Eunicites* sp. II), is much smaller in size than the specimens we have (3,5 cm) and it also lacks the rear part of the body. The specimen retains no trace of robust mandibles like those of our specimens, whereas it is clearly possible to see a pair of partially superimpressed jaws — which are likely to be those of the second pair — that are no longer present in the specimens here described. There is an elongated, vermiform body which still keeps the impression of the digestive tract in the centre along with the aciculae, one on each parapodium. This distribution of the aciculae, differs from that recorded in *E. phoenicius*, where the aciculae are grouped in pairs and where there is also an intercalary acicula diverging from the main bundle. Therefore the specimen described by ROGER differs from *E. phoenicius* because there are no robust mandibles and also because the aciculae are of a different type.

With regard to the specimen classified by ROGER as *Eunicites* sp. and represented by him in Plate X, Fig. 9, it consists only of two triangular jaws of considerable size (2 cm long), where the inner margin is smooth and slightly thickened. Such a type of jaws is not preserved in our specimens and consequently it is impossible to make a direct comparison.

With regard to the specimen represented by KOZUR, 1970 in Plate XXV, Fig. 1, as eunicid belonging to indeterminate genus and species,

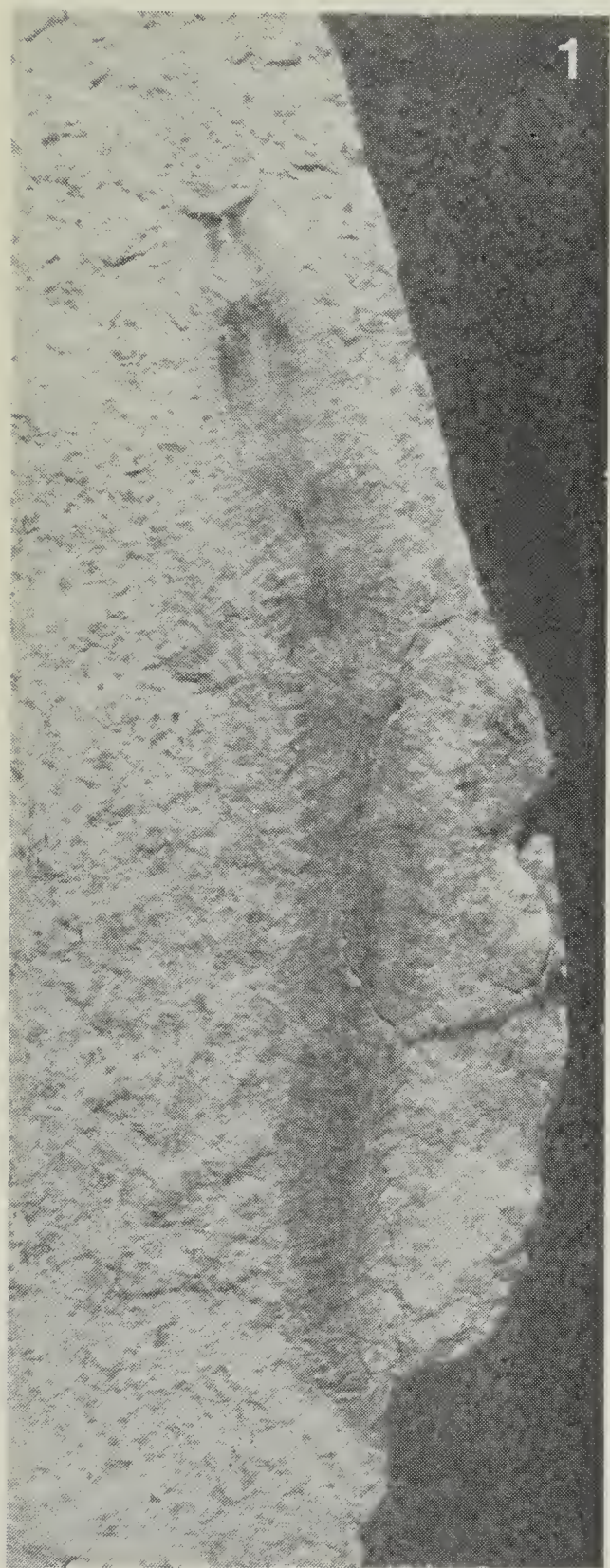


TAVOLA III. — Fig. 1. *Eunicites phoenicius*. Holotype. N. cat. i 7843 ($\times 2$ ca). -
Fig. 2. *Eunicites phoenicius*. Holotype, same specimen, front part; a: antennae
N. cat. i 7843 ($\times 3,4$ ca).